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PUBLIC HEALTH REPORTS.

UNITED STATES.

[Reports to the Surgeon-General, Public Health and Marine-Hospital Service.]

PLAGUE BACILLI IN ECTO-PARASITES OF SQUIRRELS.

By Passed Asst. Surg. GEORGE W. McCOY, U. S. Public Health and Marine-Hospital Service.

During the course of experiments in the infection of the California ground squirrel (*Citellus beecheyi*) with *Bacillus pestis*, a squirrel died of acute plague on the sixth day after inoculation. When the dead animal was removed from the disinfecting solution (1 per cent trikresol) a flea was found which had presumably escaped the preliminary combing at the time of inoculation. The flea was identified by my assistant, A. M. B. Mitzmain, and myself as a female *Ceratophyllus acutus*, the common squirrel flea of this vicinity. The flea, which was able to make a few spasmodic movements in spite of its immersion in the trikresol solution, was crushed between 2 glass microscopical slides. The film on one of the slides was fixed and stained, and an enormous number of organisms were found which were indistinguishable in size and shape from *Bacillus pestis*. The remains of the crushed flea were gently removed from the second slide with a small pledget of absorbent cotton moistened with physiological solution of sodium chloride. The cotton carrying the fragments of the flea was placed in a small pocket under the skin of the belly of a guinea pig. This guinea pig died 8 days later, and showed upon post-mortem examination the usual characteristic lesions of plague—a marked reaction at the site of inoculation, a caseous bubo, and a large granular spleen. *Bacillus pestis* was recovered in pure culture from the liver of the guinea pig.

The procedure outlined above was used in demonstrating plague bacilli in a flea found on another infected squirrel and in fæces of the flea passed during the 72 hours succeeding its removal from the host.

The small lice (provisionally identified as *Hæmatopinus montanus*, Osborn [a]) very commonly found on ground squirrels have been taken from plague-infected squirrels and treated in the same manner as the fleas, and in these also the existence of virulent plague bacilli has been proved.

There are many reasons for believing that plague is transmitted from squirrel to squirrel by fleas, but this is the first opportunity we have had of demonstrating the specific organism of the disease in external parasites of these rodents. The general subject of squirrel plague has been discussed by Wherry (Journal of Infectious Diseases, Vol. V, No. 5).

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[a] Bulletin No. 5, Division of Entomology, Dept. of Agric., Washington, D. C., 1896.